FAA AVIATION NEWS

JUNE 1972

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FAA AVIATION NEWS

COVER:
Keeping their powder dry is one of the concerns of feminine racers. See page 4.

FAA AVIATION NEWS

DEPARTMENT OF TRANSPORTATION / FEDERAL AVIATION ADMINISTRATION VOL. 11, NO. 2

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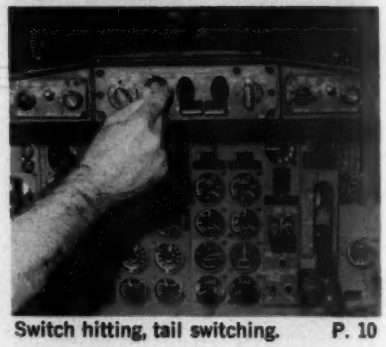

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Birds of a Feather

How the "keep 'em high" program at terminals separates the big boys from the little ones.

A significant reduction in the number of near midair collisions reported to FAA has been noted since the policy of having high performance aircraft approach busy terminals at higher altitudes (than slower VFR aircraft) was instituted just over a year ago. The agency would like to familiarize more pilots with the "keep 'em high" program, now in effect at all controlled airports.

The FAA Near Midair Collision Study of 1968 established the airspace within 30 miles of a controlled airport and below 8,000 feet as the area of greatest potential midair hazard, due to the mix of various types of aircraft both controlled and uncontrolled. Consequently the Air Traffic Service has been working out procedures to minimize the period of exposure to this hazard. The basic philosophy of "keep 'em high" is to have high performance aircraft —defined as turbojets and large turboprops that file IFR at or above 5,000 feet above ground level—enter the terminal area at 10,000 feet or above and remain at that altitude as long as possible. Requests from these aircraft to descend below 5,000 feet will not be honored, ordinarily, until they enter an established descent area for their landing runway.

Consequently, low performance VFR aircraft approaching controlled airports are able (by remaining below 5,000 feet) to minimize their exposure to jets and big transports until the point where all aircraft are being sequenced into the landing pattern by the tower. Similarly, on departure, high performance aircraft are climbed to the highest en route altitude filed by the pilot as soon as possible, leaving the lower airspace for VFR aircraft.

VFR pilots are not only advised of the advantages of low altitude approaches to controlled airports, but are also cautioned to avoid jet arrival and departure routes. Seeing and being seen by other aircraft during climb and descent may be difficult, and calls for extreme vigilance.

Although the basic "keep 'em high" concept is standard across the country, variations exist at individual airports due to special terrain features and traffic problems. For the convenience of pilots, Graphic Notices describing and explaining local procedures are published by the control tower at high density terminals. These notices show descent and climb areas and the arrival and departure routes most frequently used by jet traffic. Military jet routes, when these exist nearby, are also shown. Specific routes are recommended for arriving and departing VFR traffic.

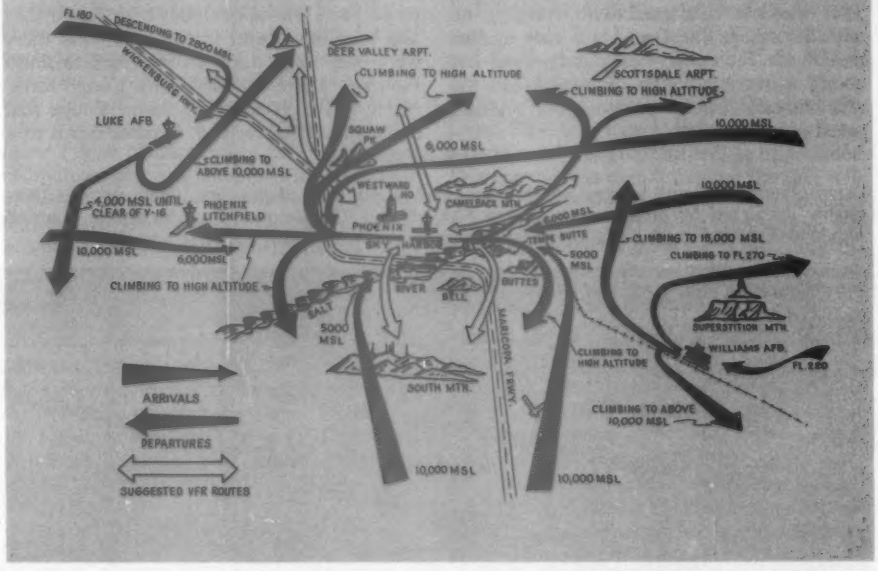
The Graphic Notices are available at most local FAA facilities including the tower, and are supplied by many fixed base operators. They are mailed locally to pilots by FAA on request. They are also found in the Airman's Information Manual (new notices are in Part 3, older notices in Part 4).

terns are not inflexible, and will be modified as needed, especially in non-radar environments.

It is believed that the pilot who has a conceptual understanding of how air traffic control is operating to ensure safe separation of mixed airport traffic will be able to fly into airports of his choice with the least possible delay and a greater sense of assurance. For VFR and IFR pilots alike, the advantages of moving, so far as possible, in

Phoenix Arizona Terminal Area

This graphic taken from AIM shows areas of high volume jet operations (black arrows) arriving and departing from civil and military airports in the Phoenix area. Salient landmarks are shown as reference points on all latest graphics, to assist pilots unfamiliar with area. White arrows show suggested VFR routes for entering and leaving terminal area. VFR radar traffic advisory service is provided when possible. Final responsibility for VFR approach course and for avoiding other traffic remains with the pilot.



At lower density terminals the "keep 'em high" procedures will be applied by controllers without formal charting. In either case, pilots who have any difficulty understanding these procedures at any airport are urged to confer with their local control tower or flight service station.

It is emphasized that the Graphic Notices are published primarily for the convenience of pilots; they do not represent data which must be memorized by the letter. The pat-

a stream of traffic of comparable speed and maneuverability are obvious.

Keeping high performance arriving aircraft at the higher altitudes as long as possible and climbing departures directly to en route altitudes have the added value of reducing the level of aircraft noise, not only near the airport, but in fringe areas also. By cooperating with the program pilots are able to contribute to the improvement of airport/community relations. ■

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Though They Be Not Angels . . . *THEY FLY!*

Every summer a gaggle of girl pilots takes to the skies to make airplanes perform beyond their maker's fondest dreams. It is known as the Powder Puff Derby.

At Rapid City (S.D.) Airport last July a dark-haired woman sat quietly in thought at a desk in the operations room. Charts and weather reports were spread out in front of her, and she was faced with a difficult decision which boiled down to the familar "Go, or no go?"

Outside the weather was clear and calm, and one after another of her fellow contestants in the All Women's Transcontinental Air Race (known as the "Powder Puff Derby") were disappearing off into the blue, bound for the finish line at Baton Rouge, La., some 1,700 miles to the south. The lingering pilot was not concerned with catching up with the others; the Derby is a race against time, with each pilot being judged on her ability to shave minutes or seconds off the officially-established point-to-point cruise speed of her aircraft.

For this particular pilot, Mrs. Gini Richardson, it was her 19th effort to win the first prize ($10,000 in 1971). She knew that her time for the first third of the race, which began at Calgary, Alberta, was good, but possibly not good enough to win. The reason she was still sitting over her cold coffee was that a cold front was reported to be headed toward Rapid City from the West Coast. She knew there was a good chance that the front would be followed by fresh north-westerly winds that could give her a strong tailwind boost over the remaining course.

There was some concern that the front could push low-lying clouds over Rapid City and sock the airport in for days—and there were only three days left in which to finish the race. There was also a low trough forming in the Gulf south of Baton Rouge that could move in overland. It came down to a choice of leaving now with fair skies ahead and finishing somewhere in the money; or waiting out the front in the hope of winning it all, but facing the possibility of not being able to finish before the deadline. She opted for all or nothing.

Mrs. Richardson stayed overnight at a motel, returned to the airport at dawn and spent the day checking on the movement of *her* front. That day saw the airport weathered in with approach of a violent but brief thunderstorm, right on schedule, and the following morning the patient weather watcher was able to climb into her airplane at daybreak and head south with a brisk wind at her tail. By changing altitudes Mrs. Richardson was able to keep her back to the wind for most of her remaining flight, arriving in Baton Rouge with a winning score of 27.7 mph faster than the rated airspeed of her Cessna 210-J (180 mph).

Mrs. Richardson's victory points up the benefits of disciplined flying. Given the speed handicapping of the aircraft, the winners of the Powder Puff Derby, now in its 26th year, have almost invariably been those women who could read the weather—weather maps, weather reports, and weather evidence in the sky—and make good decisions about when and where to fly. Because the contestants can only fly from dawn to dusk, and in VFR conditions, they must know how to avoid being locked in by the weather or the approach of night—two conditions which continue to contribute heavily to general aviation accidents. Significantly, the Derby's record over a quarter of a century of transcontinental racing is unblemished by a single serious or fatal accident!

Given the pressures of competition flying, the mechanical strain on aircraft being flown full-speed across the country, the human fatigue that comes from flying as much as 10 or 12 hours a day, the hazards of mid-summer storms and lack of familiarity with the terrain, you might well imagine that out of some 150 female contestants in this annual race there would surely be an occasional lost or crashed airplane. The regulations and procedures of the Powder Puff Derby, which are

Derby planes are tuned to razor sharp fitness before the start of the race. Each plane is thoroughly inspected by race committee and FAA officials (foreground), then locked in guarded impound. Even crews are not allowed inside except for a last minute wash and wax job.

largely responsible for their fine safety record, are worth examining.

Airworthiness. The 150 light planes that line up on takeoff day are carefully screened. Race rules require that they be no more than ten years old and have had an annual inspection within the past 50 hours of use, or within three months. Each aircraft is further inspected very thoroughly before the race by race officials, designated aircraft inspectors and FAA maintenance men. Because speed is related, in part, to perfection of engine and airframe condition—a slight compression drop or a nick in the prop could cost the racer several critical mph—the contestants need no urging to pamper their aircraft with great patience and concern.

Race planes are waved off by official starter, usually within an hour. After original takeoff pilots set their own schedules for flying legs, within 4-day limit. They are clocked in by tower observers.

Above—At early dawn takeoff planes are thoroughly and cheerfully pre-flighted; any small oversight could lose the race. Below—Gini Richardson of Yakima, Wash., had 19,000 hours, an ATR rating, and was trying for the 19th time when she won the 1971 Powder Puff.

Pilot-worthiness. Although most of the contestants have logged hundreds or even thousands of flight hours, (the pilot in command must have a commercial certificate, or instructor or instrument rating), they are not disdainful of the opportunities provided to further sharpen their skills. Many attend a special pre-race clinic, and all entrants attend special seminars and classes devoted to problems of the course to be flown. Special workshops are conducted by engine manufacturers on the most effective use of their powerplant.

In addition to the ground training every serious Powder Puffer spends uncounted hours in the air in her race plane, learning to know its every characteristic and jotting down important data: *Will it pay to climb an additional three thousand feet to gain a five mph tailwind? Is my best rate of climb really what the book calls for, in my particular plane* (these characteristics can vary appreciably from plane to plane)? *With a full load of fuel, will my plane fly better with ballast in the cockpit? Does my fuel consumption rate actually agree with the manual's figures? Will washing and waxing the plane add anything to airspeed?*

You can scarcely believe how much there is to know about your airplane, even if the ownership is a longstanding one. In that sense, every pilot who enters the race comes out a winner, no matter where she places at the finish, for unquestionably the experience of the race teaches her something valuable about her airplane and the environment in which she flies.

Another valuable discipline of this kind of race is the imposition of rules which allow no compromise with safety. Even though you may not intend to fly above 10,000 feet, to fly in the Powder Puff Derby you must have portable oxygen, properly stowed and secured. You may not alter your aircraft in any way that might lessen its airworthiness. You must have it inspected thoroughly after the race before you fly it home. Whenever the alert race committee finds evidence of a contestant's endeavoring to gain a few minutes or seconds by a modification or procedure that could possibly lead to trouble, they rule it out.

A few years ago, for example, a number of Powder Puffers were removing the rotating beacons on their aircraft to gain a slight reduction in drag. A rule was promptly formulated requiring each entry plane to have and use a rotating beacon.

On the other hand, the common practice of flying with the cabin air vents closed, for the very slight gain in airspeed gained thereby, is tolerated as not being a hazard. This, incidentally, is a trick that could be of value to a non-racing pilot in certain circumstances, such as a fuel shortage, where the range of the aircraft has to be "stretched."

This year's 26th Powder Puff Derby will start on July 7 at San Carlos Airport, Calif., and finish at Miller Airpark in Toms River, N.J., a distance of 2,616 statute miles. There are two "must" stops—Moline, Ill., and Latrobe, Pa.—and half a dozen optional stops along the way. All aircraft will be impounded four days before departure, and the race will close at sundown on July 10. The 43 cash awards total $12,500, so the competition will be keener than ever. Nevertheless, the directors of the All Women's Transcontinental Air Race, chaired for the past 11 years by Mrs. Kay A. Brick, are confident that their enviable safety record will be maintained, and that the winner will be the pilot who displays the best all-around understanding of her aircraft and how to handle it under varying conditions.

One of those directors is Frances Bera, who has won the race a phenomenal seven times. Continually prodded by the press and by other pilots for her "winning secret," Miss Bera, a petite ex-farm girl from Lake Odessa, Mich., disclaims having any special technique for racing. But she does lay heavy stress on learning the fundamentals of flying correctly and practicing them over and over again until they become second nature, as she has done during her years as a flight instructor.

Good pilots are not made in Heaven, but in the cockpit by dint of continual practice—judging from the success of this female speed burner who was once rejected as a candidate for the wartime Women's Airforce Service Pilots as being too small to fly. ■

PRICE REDUCTIONS FOR TWO VOLUMES OF THE FEDERAL AVIATION REGULATIONS have just been announced by the Superintendent of Documents. Volume II has been reduced to $6.00 with a corresponding reduction in the cost of foreign mailing to $1.50. Volume VI will sell for $5.00 instead of $5.50 with the cost of foreign mailing remaining at $1.25.

To clarify a question in the minds of some readers, the number in parentheses beside an individual Part indicates the most recent transmittal to apply to that Part, NOT the total number of changes to the Part. No number beside a Part means that none of the changes in the transmittals listed applies to that particular Part.

FARs

STATUS of the FEDERAL AVIATION REGULATIONS

(As of June 1, 1972)

FAA VOLUME/PART	TITLE	PRICE
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Part 15	Nondiscrimination in Federally Assisted Programs of the FAA (10)	
Part 21	Certification Procedures for Products and Parts (14)	
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Part 45	Identification and Registration Marking	
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Part 49	Recording of Aircraft Titles and Security Documents (18)	
Part 183	Representatives of the Administrator (1)	
Part 185	Testimony by Employees and Production of Records in Legal Proceedings and Service of Legal Process and Pleadings (2)	
Part 187	Fees	
Part 189	Use of Federal Aviation Administration Communications System	
Vol. III: (Transmittals (1-10)		$8.50 + $2.25 foreign mailing
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Part 25	Airworthiness Standards: Transport Category Airplanes (10)	
Part 36	Noise Standards: Aircraft Type Certification	
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Part 29	Airworthiness Standards: Transport Category Rotocraft (5)	
Part 31	Airworthiness Standards: Manned Free Balloons	
Part 33	Airworthiness Standards: Aircraft Engines (2)	
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Part 145	Repair Stations (8)	
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Part 93	Special Air Traffic Rules and Airport Traffic Patterns (25)	
Part 99	Security Control of Air Traffic (25)	
Part 101	Moored Balloons, Kites, Unmanned Rockets and Unmanned Free Balloons (8)	

FAR VOLUME/PART	TITLE	PRICE
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Part 123	Certification and Operations: Air Travel Clubs Using Large Airplanes (8)	
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Part 67	Medical Standards and Certification (6)	
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Part 165	Wake Island Code	
Part 167	Annette Island, Alaska, Airport (5)	
Vol. XI: (Transmittals 1-10)		$2.75 + 75¢ foreign mailing
*Part 71	Designation of Federal Airways, Controlled Airspace and Reporting Points (6)	
*Part 73	Special Use Airspace	
*Part 75	Establishment of Jet Routes (4)	
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**Part 95	IFR Altitudes (6)	
**Part 97	Standard Instrument Approach Procedures (10)	
Part 157	Notice of Construction, Alteration, Activation and Deactivation of Airports (10)	
Part 169	Expenditure of Federal Funds for Nonmilitary Airports or Air Navigation Facilities Thereon	
Part 171	Non-Federal Navigation Facilities (7)	

* Changes to individual airspace designations and airways descriptions, individual restricted areas and individual jet route descriptions are not included in the basic Parts 71, 73 and 75, respectively, because of their length and complexity. Such changes are published in the Federal Register and are included on appropriate aeronautical charts.

** Due to the complexity, length, and frequency of issuance, airworthiness directives, enroute IFR altitudes and standard instrument approach procedures are published in the Federal Register and are not included in basic Parts 39, 95 and 97. In addition, enroute IFR altitudes and instrument approach procedures are depicted on aeronautical charts.

Standard instrument approach procedures are published in the Federal Register by reference to FAA documents which are available for examination at the Rules Docket (GC-24) and the National Flight Data Center, in FAA Headquarters, Washington, D. C. and at FAA Regional offices and Flight Inspection District Offices.

Cleared to Go II

Number Two To Land

Second in a series on air traffic clearances, designed to acquaint pilots with various types of clearances in current use and with the privileges—and limitations—of each. The following article deals with ***VFR arrival clearances.***

Inbound VFR at a controlled airport, you will receive only one actual *clearance* from Air Traffic Control (ATC), and that is when you are "Cleared to land." However, between your first voice contact with the airport and your shutdown on the ramp, you may talk to three or four different FAA controllers who will pass you a great deal of information regarding traffic, weather, runways, taxiways, fixes, etc. This data will be delivered in a semi-abbreviated form at a time when you are going to be pretty busy adjusting mixtures and prop, trimming the aircraft for landing, keeping clear of clouds and watching for other airplanes and lining yourself up for the active runway.

Radio work need not be a burden, even if you are a single pilot approaching a busy airport, if you anticipate the approach procedures and arm yourself with approach, tower and ground control frequencies (located in AIM). The controller will pass them to you, but if you happen to mis-hear one digit you could work yourself into a fine frenzy trying to contact a controller on the wrong channel. It also helps to study the current chart in advance and visualize reporting points and fixes.

Your first radio contact on nearing a controlled airport is with the ATIS (Automatic Terminal Information Service), if one is available. The repeated tape will give you time to set your altimeter, visualize the pattern and note wind direction and velocity. ATIS frequencies, sometimes identical with the airport VOR, appear on recent sectional charts beneath the tower (local control) frequency.

At about 25 miles out you should be ready to contact the tower on approach control frequency. It is a good idea to monitor the frequency a few minutes before you break in—especially if there is no ATIS. This will give you time to note important points unhurriedly, and will also help you avoid interrupting another pilot's transmission. When your turn comes, you state simply *Who you are* (full N number on initial contact), *Where you are*, and *What you want to do*. Mention the ATIS code name if you have it; otherwise, the controller will waste air time repeating the same information (any necessary updating will be given you by the tower without your requesting it).

Even though you have filed a flight plan, if you are VFR the tower will have no previous knowledge of you, so be explicit in your first contact: *Elmersgrove Approach Control, Bonanza 3755 Echo, over Prairie Junction golf course at 5,000, heading 070, landing at Elmersgrove. I have Information Whisky.* This capsule information will enable the controller to mentally establish your position and advise you of other known aircraft in your vicinity (workload permitting).

If the tower has radar (AIM can tell you) and if you have a transponder, you should also include your transponder code, which will help the controller to establish radar contact. Approach Control may, as time permits, give you radar advisories of other traffic, although this will not relieve you of the responsibility to see and avoid other aircraft. Additional radar services available to VFR pilots at some locations can be found along with their frequencies in Part 4 of AIM.

Remember that radar returns do not register your crab angle; if you are crabbed 20° to the left, a 12 o'clock target on radar will be seen from your cockpit at one or two o'clock. You may be given radar vectors or be requested to report over specific landmarks but, again, as a VFR pilot you must remain clear of clouds and decline advisories which might make you violate regulations or jeopardize safety.

As you come within visible range of the airport, the approach controller will ask you to switch channels to the local controller, who will fit you into the landing pattern traffic. You enter the pattern with a standard downwind approach, unless otherwise informed by the tower.

As you enter the traffic pattern, the tower will advise you of your landing sequence: *Five, five Echo, you are number three to land, behind the Northern DC-10.* The tower may ask you to extend downwind or shorten your approach. Comply if you can, but they will offer another course of action if you tell them you cannot. If you feel that the tower has forgotten you, remind them of your need. Do not come sailing "over the fence" on your own.

It is a good idea to repeat the landing sequence information as given. If you terminate the transmission with a single "Roger," the tower will assume you have the preceding airplane in sight; **if you do not, say so at once.** The controller will come back to you with more specific indications of where to look: *Just across the bridge, a little below you, a three-engine jet with an orange tail.*

Have the preceding aircraft clearly in view *in the air* before you commit yourself to landing. Unless you can observe his touchdown spot, and land beyond it, you may become tangled up in his wake turbulence (or you may be lined up for the wrong runway, one being used for departures). The words "Cleared to land, Runway 25," as you approach the threshold, are an invitation, not an inflexible command.

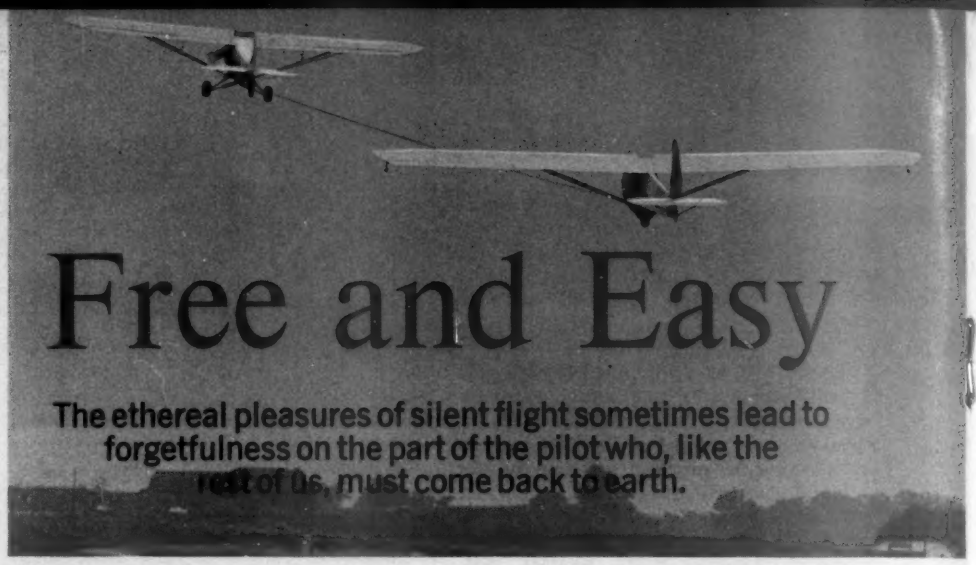
As you land the tower will suggest where you can turn off, and then hand you over to ground control for taxi information. Tell the ground controller where you want to go, and he will guide you there as rapidly as possible. If you are not familiar with the airport, let the ground controller know. He will give you detailed information. Unless you receive the all-encompassing "cleared to the ramp," you can expect to hold short at intersecting runways or taxiways.

If you are bound for a major airport with a TCA, or Terminal Control Area (Atlanta, Chicago, Los Angeles, New York, or Washington National, at present), obtain a current local chart which shows the TCA boundaries and altitude restrictions. To fly in a TCA, of course, you must have at least a private pilot's certificate and your airplane must be equipped with a transponder as well as VOR receiver and two-way radio.

The TCA chart will identify special VFR call-up points on the periphery of the Area, where you make your first radio contact with the tower (TCA approach control). You give the same information you would give to a non-TCA approach controller, including transponder code. You will be given radar vectors to separate you from other aircraft and establish you in the landing sequence, in a manner similar to an IFR approach, except that no instrument landing system will be used. The usual precautions for watching out for other aircraft and staying clear of clouds must be taken.

At busy, controlled airports, the mix of IFR and jet aircraft with slower planes flying VFR can create problems of traffic flow if the VFR pilot is not prepared for the information he must transmit and absorb during his approach. The result can be delays in landing, which sometimes lead the private pilot to imagine he is being "put on the shelf" for air carrier traffic. The truth is, if you anticipate well what you are about to receive, your clearance to land will come exactly in turn.

Next month: Special VFR



Free and Easy

The ethereal pleasures of silent flight sometimes lead to forgetfulness on the part of the pilot who, like the rest of us, must come back to earth.

For the power transition pilot the sharp "ping" as the tow rope is released at 3,000 feet signals the onset of a remarkable new sense of freedom in the air. There are no rpm's to establish, no angry roar to listen to, no mixture to adjust, no radio dials to twiddle, few gauges to monitor. You do have an airspeed indicator, an altimeter and probably a variometer (for rate of climb or descent) but these make few demands on you once you have trimmed the elevator comfortably and are loafing along at less than highway speed. Possibly you have a turn and bank indicator, and even a compass, if you are rigged for cross country, but mostly what you have are your eyes and ears and the feeling of being a great white bird in your native element.

That wonderful feeling can be deceptive, for sooner or later you approach the earth and the realization that you are in an aircraft which you must land on suitable terrain in an appropriate attitude. Basic sailplane trainers have excellent handling characteristics and present no serious problem either to power transition pilots or new students of flight. Nevertheless, sailplane accidents are increasing, and the ratio of accidents per hour flown remains well above the average for general aviation, despite improvements in design and technique. Soaring is a learned, not a natural skill. The sailplane's controllability, sturdy structure and low stall speed are built-in safety features that can be swiftly erased by a pilot who fails to consider operational limitations—either his or the plane's.

A review of recent accidents indicates that soaring places more emphasis on pilot judgment than many individuals realize. Soaring may offer you "the freedom of the skies" in a very real sense, but it also endows you with more responsibility for your own safety. You discover very quickly how dependent you have been on the radio for weather information, for navigation, for traffic separation; and how often that faithful if noisy engine has covered up your bad flying procedures, especially on landing.

You also discover that the sailplane is a very forgiving creature but it is not *all*-forgiving. It will recover nicely from stalls or spins, but not with zero altitude loss. It has at least three times the glide angle of a power plane, but that glide angle cannot be "stretched" by will power, especially if the trees are already tickling the belly on landing final. It will, on occasion, swoop skyward like an eagle, but it will also, on occasion, sink earthward like a damp leaf. It will not burn (unless it has auxiliary power), but it will crumple. The accident records are sprinkled with accounts of high time power pilots who overestimated the operating limitations of a sailplane.

Preparations for a sailplane flight begin with a weather briefing, usually best obtained before you leave home. Many gliderports have no FSS or other source of weather information on the field, and some may not have a telephone. Even if you plan to stay within 10-20 miles of the field, you still want to be clued in on the local weather picture. The slower (than power craft) speeds of the sailplane make it more vulnerable to abrupt changes in weather, and if an overcast moves in at low altitude over your field while you are soaring merrily in a thermal area, you could have some uncomfortable moments finding your way back.

An ability to make good judgments about the local weather is a necessary part of sailplane training, and it comes only with experience. For beginners, the advice of veteran pilots is usually helpful. If you see others at the gliderport folding their wings and hoisting their sailplanes on the trailer, or tying them down, this is no time to insist on a tow.

Preflighting the sailplane is similar to the power plane procedure, minus the engine and fuel inspections. Go over every movable part with care, from nose to tail, and from wingtip wheel to wingtip wheel. Check all control surfaces for freedom of movement, alignment, and security. You can usually check the movement of spoilers and ailerons best by standing outside the cockpit when you move the controls. Check wing and stabilizer attachment bolts for proper installation. The pitot tube and static port openings need frequent attention. The main wheel is often hard to examine, but it is all you have for your ground roll and you want to be sure it will function properly.

The tow rope is an important preflight item that will be new to the power pilot. Like fueling, some pilots leave its care and examination to hired hands, but if the rope gives trouble in flight, it is *you* not they, who have the problem. Three of the six fatal accidents in 1970 occurred on takeoff.

Experienced pilots usually inspect the section of rope near the tow ring before it is snapped in place. Your pre-takeoff checklist should also include a check of the safety harness, altimeter setting, ballast security, canopy fastening, controls, brake and trim position. The field man should help you check the pattern for traffic and signal the towplane pilot. He wags his rudder when ready, you do the same, and away you go.

On takeoff, the sailplane will break ground much sooner than the towplane and will have a tendency to rise sharply. This tendency has to be guarded against, as too high a tow position can seriously interfere with the takeoff of the towplane. The sailplane should be held just above ground until the towplane is airborne, then held directly behind and level with it. Keep the towplane on the horizon, with the vertical fin lined up with the

Above—instructor (rear seat) in a Schweizer 2-33, a typical sailplane trainer, leans forward to explain instruments to student. Below—sailplane landing flare is shallow. Approach speed is well above stall and sailplane is flown onto the ground. Long wingspan gives good aileron control. Spoilers or speed brakes (visible inboard) help disperse airspeed.

fuselage. In level flight a low tow position is sometimes used—about 30 feet below the tug.

Auto tows are much cheaper than aero tows and are frequently used for that reason. CAUTION! They are also more frequently associated with accidents. In his eagerness to gain as much altitude as possible before the tow car runs out of driving room, the pilot may exceed the critical pitch attitude, and stall the moment the auto slows down—or, as sometimes happens, the tow line parts.

All sailplane pilots should be fully prepared mentally for this contingency, regardless of the type of tow. The appropriate course of action (requiring instant decision) will depend on the altitude at which the mishap occurs, and the available overrun.

A wing-walker is helpful for the beginning of the takeoff run, especially if there are no wingtip wheels. (Two helpers may be needed in strong winds.) The field shown is near Warrenton, Va.

At very low altitudes (under 200 feet), there is usually very little choice but to continue in the same direction, making gentle turns to avoid major obstacles. If the tow line parts above 200 feet, you may only have time to do a 180° turn and land downwind. Take care not to pull the nose up in the turn. *A sailplane can execute a 180° turn without much loss of altitude, if the pilot has airspeed to give away.* If you are at 500 feet or better when the tow is aborted, you will have ample time to perform a normal pattern approach and landing.

Signals between (non radio-equipped) towplane and sailplane concerning line release should be memorized and rehearsed periodically, as there is no time to ponder during an aborted takeoff.

The landing phase of flight continues to figure prominently in sailplane accidents, both on and off airport, due largely to the persistent habit of trying to land near the threshold of a runway. Some soaring schools site a touchdown marker about a third of the way down the runway and insist on students landing beyond it, as insurance against being caught powerless on the "wrong side of the fence," following an abrupt wind shift, or a poorly planned approach.

The common practice for landing a sailplane is to enter the pattern obliquely on the downwind leg at about 600 feet above ground level. Because air currents vary significantly as you approach the ground, in trainers it is a good idea to carry an approach speed roughly twice your stall speed. Airspeed is controlled with the elevator, rate of descent with the spoilers.

Many pilots make it a habit to establish their approach with a given percentage of spoilers extended as a form of insurance: if they are too low on final approach, because of a wind shift or pilot miscalculation, they can immediately retract the spoilers and extend their glide. Others like to come in high and apply the spoilers only as they approach the threshold.

The sailplane landing pattern is much tighter than the power plane pattern, but the conventional rectangular (downwind, base leg, final) pattern is standard. A common mistake, among pilots who decide they are too low after turning on the base leg, is to make a very shallow turn onto final—another mistake is a panic-induced slipped or skidded turn. A normal well-banked turn will bring the sailplane over the runway with the least possible loss of altitude.

The sailplane is flared slightly at a lower height than the power plane and held in a gradual descent until the wheel touches—similar to making a "wheel landing" in a tail wheel airplane. Use of full spoilers and wheel braking normally bring the aircraft to a halt well short of the runway end. If there appears danger of an overshoot, the stick may be brought forward to hold the nose skid down for additional braking. There are no go-arounds!

One other serious source of sailplane accidents, especially among pilots with little time in type, is poor loading. The same considerations which require you to keep the gross weight and the center of gravity within the prescribed limits in a power plane apply to the sailplane. Most sailplanes have a loading chart in them, and all soaring pilots should be able to calculate quickly and accurately whether the load distribution is legal, and hence safe. The light weight of sailplanes, relative to the passenger load, makes this a matter of the utmost importance. In some of the lighter, more sensitive sailplanes, the act of passing a heavy camera from one seat to the other could require re-trimming the aircraft.

A nose-heavy or tail-heavy plane will stall more easily and be more difficult to pull out of spins. Indeed, some sailplanes are potentially uncontrollable with a single occupant under 125 lbs. and no ballast. Minimum as well as maximum loads should be placarded in the aircraft, but the pilot is responsible for obtaining this information wherever it may be found.

Every pilot should understand the theory and techniques of calculating matters affecting center of gravity (see "Weight Watching," FAA AVIATION NEWS, March and April 1971), but for practical purposes he should also have access to a loading graph or *moment envelope* for every sailplane he uses. These will save him time on the field and reduce the opportunities for errors of calculation. If these are not provided by the manufacturer, a qualified pilot or engineer can devise them.

Incidentally, in calculating sailplane loads you want to count everything not a part of the original airframe—not excepting parachutes and oxygen equipment. Do not use the 170 lbs. figure for passengers; get the exact weight.

If you have ever seen a seagull trying to get off the beach with an oversized clam in its beak, you can appreciate the importance of a few pounds in the sailplane load. If you want to fly like a bird, you have to learn to think like one.

(A third and final article in this soaring series, on the safety aspects of flying thermals, ridge lifts and mountain waves, will appear in the next issue.)

Standard signals, approved by FAA and the American Soaring Society

Sailplane, release line: *tug rocks wings.*

Sailplane cannot release: *sailplane moves out right and rocks wings.*

Towplane cannot release: *towplane fishtails.*

NOTE: If neither plane can release (extremely rare), they must land together with the sailplane touching down first.

The Fixer

National Mechanic Award Winner Herbert Gehm is a Super-Sleuth at Solving Black Box Mysteries

A Boeing 747 has more than 100 miles of wire "highways". Gehm, an electronic expert for United Air Lines, has to know his way around.

Herbert Gehm is a fixer.

But don't tell the police. He is strictly legal. In mechanic terminology a "fix" is some creative way of repairing or even redesigning a particular black box to make it function properly on the aircraft. And a "black box" is the name used to designate electronic equipment.

Gehm is one of the best black box fixers around, as indicated by his winning first prize in the Air Carrier Division of the 1971 FAA Aviation Mechanic Safety Awards. In announcing the award, FAA Administrator John H. Shaffer said, "Gehm was selected for this high honor because of his professional ability and personal effort which goes beyond the scope of excellence expected of aircraft mechanics."

Employed by United Air Lines in its radio and instrument shop at San Francisco International Airport, Fixer Gehm keeps busy solving the often complex problems which trouble the highly sophisticated electronic equipment on the big birds. He has been doing this kind of work for almost 25 years, and he really enjoys the challenge of solving aircraft problems, large or small. He approaches each task like the fictional detective who must use his insight and ingenuity to unravel a baffling case.

Consider the *Case of the Hidden Rudder Kick:*

Soon after United acquired its fleet of intermediate Boeing-737 jets, an unexpected item began showing up repeatedly on the pilots' squawk list—"rudder kicks over hard on autopilot." The rudder on a Boeing 737 is more than 20 feet tall from base to top and covers 57.1 square feet. When a control surface of this size kicks hard, the airplane and its passengers are bound to notice it. On one occasion a stewardess was thrown off her feet and injured by the sudden motion.

Theoretically the problem was easily detected. At the high speeds obtained in altitudes above 30,000 feet the tail of big jets tends to develop a yawing or corkscrew-like motion. To suppress this movement, the autopilot has a gyro sensor that senses this tendency as soon as it begins and activates a yaw damping device that moves the rudder into appropriate positions, thus maintaining smooth flight.

The yaw damper is linked to the two alternate hydraulic systems on the aircraft, and apparently the rudder kick occurs at the point when the pilot is switching over from one system to the other; a surge of power evidently overcontrols the rudder. The built-in test equipment for the 737's electronics indicated a defect in the relay, or electronic switching unit.

So far, simple enough. Just yank the unit from the airplane and analyze the problem with the more sophisticated bench testing equipment available in the shop. *Problem.* Bench tests are unable to clearly define any defect in the law damp coupler. *Question.* What is wrong with the test equipment?

The manufacturer had no answer.

This is the point at which Gehm entered the picture. Early in 1971 he was asked by the maintenance department of United's San Francisco base to determine why the bench testing equipment was unsatisfactory, and how it could be "fixed." He began by methodically disassembling the test device and checking for any obvious signs of defective material or workmanship.

Nothing.

The task then became one of virtually redesigning the "box." Gehm spent nearly a month mulling over the problem, considering and discarding hundreds of possible solutions, making endless notes and drawings. During this "think phase" of his job the problem was never far from his mind; he found himself making notations on paper napkins at lunch time and he kept a scratch pad near his bed at night in order to capture any interesting ideas that popped into his mind as he was drifting off to sleep.

Finally he was able to visualize a test system sensitive enough to identify breakdowns in specific areas of the yaw damp coupler. He tacked up his drawings over his work bench and proceeded to built a new blackbox. The building phase of his work was much shorter than the think phase, because most of the difficulties had been worked out in advance in his mind.

When a 20-foot rudder like this, on the Boeing 737, kicks over hard in flight, your passengers know it. Finding the cause, a small electronic part, is like looking for the proverbial needle.

Predictably, when Gehm's box was plugged into the yaw damp coupler unit, defects in the system were promptly located and replaced. The unwelcome rudder kick disappeared, to the relief and comfort of all concerned.

Later in the year, Gehm was assigned to another "case" involving a yaw damper. This time the aircraft involved was the biggest jet of them all, the Boeing 747, and the difficulty was in the yaw damper com-

Tenth Annual Mechanic Award Winners

Charles C. Linberg
Ozark Aircraft Radio Co.
St. Louis, Mo.

The regional winners in FAA's tenth annual Aviation Mechanic Safety Awards program were honored recently. An account of how United Air Lines' Herbert R. Gehm, air carrier national winner, found better ways of isolating trouble spots in the electronic systems of his company's jets appears on page 10. The story of how general aviation national winner, Charles C. Linberg of St. Louis uses a tape recorder in an innovative pursuit of radio and associated engine problems will be told next month.

National winners receive a bronze wall plaque.

puter, which consistently produced malfunction readings when tested. Gehm studied the situation and concluded that, once again, the problem lay in the design of the test circuit. Eventully he was able to solve the problem by simply removing an unnecessary resistor that was overloading the circuit and causing faulty readings of perfectly safe equipment.

Another black box mystery that came his way in 1971 concerned the Central Air Data Computer, also on one of United's 747s. This instrument, which provides such vital data as altitude, airspeed, and outside temperature, also gave unacceptable readings on the test equipment despite apparently normal functioning. Gehm found that by adding several parts to the original testing circuit—primarily a phase shifter and a variable resistor—he was able to obtain completely reliable readings.

As a fixer of avionics, Gehm has been able to make an important contribution to aviation safety, as well as to derive considerable satisfaction from solving mysteries completely on his own. His grounding in this field was gained through 20 years in the Air Force, starting at age 18 as a raw trainee. When he retired in 1967, he was a master sergeant supervising a team of 20 mechanics.

Gehm was hired almost immediately by United Airlines, and he transitioned to civilian avionics without any difficulty. An avid reader, with boundless curiosity, he keeps himself fully informed on all the latest developments in aircraft electronics. He is frequently used as an instructor by United, which last year awarded him its own Award of Merit for "writing the book" on certain 747 avionics overhaul procedures and for performing unusual fixes.

To receive FAA's award as the outstanding mechanic in the country (air carrier division) Gehm and his wife will be flown to Washington, D.C., on June 27 for an impressive ceremony in the Nation's Capital and a three-day holiday. He will also receive $300 from Champion Spark Plugs, $200 from the Air Transport Association, and $50 plus a matched set of ratchets from S-K Tools.

Alaskan Region:

Charles E. Ross
Wien Cons. Airlines
Anchorage, Alaska

David Botens
ERA Helicopters, Inc.
Anchorage, Alaska

Great Lakes:

Nicholas M. Quint
Rock County Airport
Janesville, Wisc.

New England:

Nicholas Augustinovich
Claremont Airways
Claremont, N. H.

Central:

Robert G. Zick
North Central Airlines
Minneapolis, Minn.

Rocky Mountain:

Samuel W. Merrill
Utah State University
Logan, Utah

Southern:

Robert B. Reynolds, Jr.
Eastern Air Lines, Inc.
Miami, Fla.

Robert J. Schremmer
Genesco, Inc.
Nashville, Tenn.

Pacific:

Herbert Fujimoto
Hawaiian Airlines
Honolulu, Hawaii

Vernon E. Dunn
Rotocraft Maint. Co.
Honolulu, Hawaii

Southwest:

Harry A. Palmer
Wooley Tool & Mfg. Inc.
Odessa, Texas

J. E. Campbell
American Air Lines
Tulsa, Okla.

Joseph Griffith
American Air Lines
Chouteau, Okla.

Northwest:

George H. Felt
George Felt Company
Roseburg, Ore.

Eastern:

Christian Worst
Mohawk Airlines, Inc.
Utica, N. Y.

Harold R. Luce
Texaco, Inc.
Teterboro, N. J.

Western:

Ivan M. Eakle
Capitol Skypark, Inc.
Sacramento, Calif.

European:

Bernard Trey
Seaboard World Airlines
Jamaica, N.Y.

Famous
FLYERS

"Speed" Holman

The Minnesota farm boy who doubled as airline captain and racing demon

Charles "Speed" Holman at age 33.

Holman Field at St. Paul is not a major airport, and few of those who use it regularly associate its name with a famous aviator. But 40 years ago Charles "Speed" Holman was a local ex-farm boy whose name was a household word for aeronautical daredeviltry throughout the country and a favorite son of the Midwest. He set no enduring records and he blazed no indelible trails in the history of aviation, but his love of flying and his generous spirit did much to usher in the age of flight by overcoming public fears about being airborne.

Charles Holman was born on December 27, 1898, on the outskirts of Minneapolis. His father was a cattle breeder, and Charles worked for him during his school years. The tall, rather shy boy swept the barns and pulled weeds in the fields, and frequently at night he would drive cattle along the lonely roads to sell the next morning in the market at Minneapolis. He loved the sense of freedom on the road.

But what really fascinated him was machinery, and he was always tinkering with any piece of equipment he could lay his hands on. In his teens he saved up his earnings to buy a motorbike, and soon earned the name of "Speed" because of the many races he won. Later when airplanes began being seen for the first time over the Minnesota farm country, Speed was fascinated. As soon as World War I broke out he tried to enlist in the Air Service, but was rejected by all the military branches because of a defect in one ear.

He was still determined to fly, and he found a mentor in Walter Bullock, a veteran airman who had occasion to land an airplane on an ice-covered lake near the farm in the winter of 1918. Holman dogged the flyer's heels until Bullock agreed to take the lanky farm boy on as his apprentice and disciple.

Speed's first job was to learn aviation mechanics, and he had little trouble mastering the trade. Came spring and Bullock hit the barnstorming circuit, with Holman borne aloft as a wing-walker and general stunt man. His parents were horrified at the idea and coaxed him down with the offer to buy him his own airplane.

He thus obtained an old aircraft, which he spent a year working on and learning to fly. By the spring of 1921 he was able to begin barnstorming for himself, flying to fairs and competitive meets all over the Midwest. He also flew the mail occasionally and chartered his aircraft.

Speed won his first major prize in 1923 at the National Pulitzer Races in St. Louis. He placed first in the stunt flying contest with an astonishing series of loops and power dives and barrel rolls. From that day forward he compiled a consistent record of prize winning. In 1925 he married a young nurse, Elvira Swansen, and in the following year he took a job as one of the original pilots for the newly founded Northwest Airlines. He flew both mail and passengers and eventually became chief of operations.

In addition to his duties as airline pilot he continued to participate in aviation meets. In 1927 he won the National Air Derby, flying from New York to Spokane in 19 hours and 42 minutes, beating out his closest rival by only 19 seconds. In 1928 he established a world loop-the-loop record, performing 1,453 consecutive loops over St. Paul during a five-hour period. He also won the Los Angeles to Cincinnati Air Derby in 1928, and the Gardner Trophy Race in 1929. His last big race was the famed Thompson Trophy classic in 1930.

Speed had not intended to enter the race that year, arriving at the site in Chicago as a spectator. On the morning of the race he learned that a friend has just purchased a new Laird racer, a tiny biplane which had only rolled out of the factory a few days earlier. As Holman inspected the plane, the old sense of challenge came over him, and he felt sure that he could win the race with this airplane. "Take it," said his friend.

The new craft had not been completely test flown, but Speed went over it carefully and noted its characteristics. (His own racer was a jet black Laird of a larger size.) When the race began the crowd roared at the sight of the enormous Speed Holman—all six feet five and one-half inches of him—sitting upright in the cockpit of the tiny Laird, goggles on his face, his white scarf blowing in the wind.

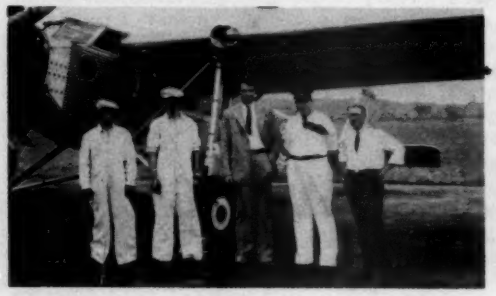
The Thompson was a speed race around pylons, 20 laps of five miles each. The pace was fast, and one by one pilots began to drop out until by the 17th lap it had narrowed down to a two-man contest. Speed was winging along at over 200 miles per hour with an old friend and rival, Arthur Page, hot on his tail.

Holman found that the small, speedy biplane handled smoothly on the straight runs but bounced erratically during the steeply banked pylon turns. One characteristic of the aircraft he had not foreseen was the tendency of the exhaust stack to release its fumes directly in his face, bringing him to the verge of nausea and loss of control. On the 19th lap his competitor, Page, veered off course, tried to pull up, and crash landed, escaping serious injury. Speed sailed around the last lap in solitary glory and shot across the finish line the victor with an average speed of 201.9 miles per hour.

The prize was $10,000, which Speed split with the Laird's owner. "I really didn't enter for the money," he told reporters. "I just couldn't stay out of the race."

Contrary to some expectations, Speed's employers, Northwest Airlines, encouraged his off-duty competition flying and stunting. In the cockpit of an air carrier he was a very different pilot, cool, confident, and precise —although famous enough to be recognized by most of his passengers. As a stunter he was so skillful that he actually made flying look easy—and so, in the viewpoint of his airline, helped dispel the popular notion that flying was inherently dangerous and difficult.

Long, lanky "Speed" was one of the original pilots for Northwest Airlines. Aircraft is a Hamilton Metalplane, powered by a single 425 hp engine, cruising at 115 mph, carrying eight.



Holman's favorite racer, a jet black *Laird Special*.

Speed himself had a missionary zeal for spreading the love of flying to other persons, and he could never resist an invitation to talk about flying to young people, or to demonstrate his art for them. The dedication led to his early, tragic death.

In May of 1931 Speed flew to Omaha to participate in weekend ceremonies dedicating a new airport. He was preparing to return home when he was told by the management that there was an unscheduled lull in the program and thousands of people in the stands were becoming restless. Speed immediately volunteered to put on a free stunt show for them.

He did his favorite stunt, always a great crowd pleaser. Taking his black Laird up to about 2,000 feet, he nosed over and roared down toward the earth. Some 280 feet above the ground he pulled out of the power dive, leveled off and rolled over into inverted flight. As usual, he finished the stunt by flying down the runway upside down at a height of ten feet above the ground. The crowd cheered and waved, but other airmen who were watching knew something was terribly wrong.

Speed was hanging out of the cockpit, struggling with the controls above him. It was later surmised that his safety belt had broken, and he was unable to reach the controls. Suddenly the plane plunged into the ground at about 250 miles per hour and burst into flames. Speed Holman died instantly.

Ironically, the master stuntman who always examined every inch of his airplane before taking off had apparently overlooked a rust-worn belt buckle.

Messages of condolence poured in from all over the country, particularly from his old friends in the aviation community—from Charles Lindbergh, a frequent visitor at his home; from Jimmy Doolittle, and from Eddie Rickenbacker. His funeral in Minneapolis was attended by 100,000 people, and the Governor of the state led the four-mile funeral procession to Acacia Cemetery, where the body of the former farm boy was returned to the earth.

A few years later the name of the St. Paul Airport was changed to Holman Field in his honor. In one corner of the field a memorial was erected bearing the appropriate words: "He belonged to heights, and the heights claimed him." ■

BRIEFS

■ INSTRUMENT FLYING, ANYONE? The latest revision of FAA's Instrument Flying Handbook is off the press. Designed for at least the private pilot who is already thoroughly familiar with the Pilot's Handbook of Aeronautical Knowledge (AC 61-23A), the instrument handbook is a detailed 275-page discussion of all aspects of IFR flying. Together with an approved text on meteorology, such as Aviation Weather (AC 00-6), the instrument guide will provide the flight student with the basic information required for an IFR rating. Available from the Superintendent of Documents, Washington, D.C. 20402. Price $2.50; catalog number TD 4.8:In 7/2/971.

■ AUTOMATED ADVISORIES. An automated radar advisory service for VFR traffic is being tested at the Knoxville, Tenn., tower as part of an FAA program to provide more radar assistance to general aviation. Computers will analyze radar returns and provide voiced messages on tape to participating aircraft; conrollers will monitor the broadcasts. If successful, the automated service could offer an expanded VFR service instead of being limited, as at present, to periods when controllers are not fully occupied with separating IFR traffic. Pilots (transponder-equipped) wishing to participate in the test program should advise the Knoxville tower.

■ WATCHING THE WIND. A design for a ground-based acoustic wake turbulence detection system, that will locate and track wake turbulence vortices at altitudes up to 1,700 feet is being sought under an FAA contract with Xonics, Inc. of Van Nuys, Calif. A detailed analysis will be made of previous wake turbulence studies, and measurements will be made of the turbulence generated by several classes of aircraft, including wide-body jets.

■ UPWARD AND ONWARD. "The next decade will be a period of vigorous and uninterrupted growth for both general aviation and the air carriers," according to FAA Administrator John H. Shaffer. A limited number of free copies of FAA's "Aviation Forecasts, Fiscal Years 1972-1983" are available from DOT Distribution Unit, TAD 484.3, Washington, D.C. 20591. Send a self-addressed mailing label.

■ AIRSPACE OBSTRUCTIONS. FAA must be notified of any intention to erect or alter a structure that may affect the navigable airspace. This includes any structure more than 200 feet above ground, or of lesser height if located close to a runway. Even roads and railways may present an airspace obstruction. FAA Advisory Circular AC 70/7460-2C gives general details and lists FAA Regional Offices where notices can be filed. A full explanation is given in FAR PART 77. Write TAD 484.3, Washington, D.C. 20591.

FAA Discloses New Design for Flight Service Stations

The more than 1,200 persons who attended the FAA National Aviation System Planning Review Conference in Washington, D.C., in May heard Deputy Administrator Kenneth M. Smith describe FAA's plans for reconfiguration of flight service stations. Present plans call for FSS operations to be streamlined by the use of four separate types of stations with services provided at each location according to user demand.

Type I stations will be unmanned facilities providing self-briefing materials and a telephone to a briefer at a higher level FSS. Type II and III stations will be staffed facilities operating on a part-time basis to provide individual pilot briefings and flight planning services. Type IV stations will perform the centralized functions for the entire flight service network, including en route communications and in-flight assistant services, search and rescue, lake/mountain/island reporting, transborder services and mass pilot briefings.

The Planning Review Conference devoted one-half day to general aviation. Papers were submitted by the general aviation trade associations on common problems of light plane pilots for consideration in NAA's planning for the next decade in aviation.

The subjects included general aviation growth trends, pilot skills and safety factors, FAA's responsibility toward the needs of general aviation, V/STOL equipment and landing facilities, improved air traffic control with various degrees of automation, more efficient navigation and ILS facilities (such as area navigation and microwave landing system) and airport planning and development.

Available at the conference were copies of two FAA documents which detail the agency's long-range plans for an aviation system capable of meeting the projected air travel needs through 1982. These books can also be obtained by sending a check with the title and stock numbers to the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Books are: National Aviation System Ten Year Plan, 1973-1982 (Stock #5007-0176) $2.00; National Aviation System Policy Summary, 1972 (#5007-0175) $2.25.

Proposed Transponder Rule Eased After Public Response

A proposed rule that would make 4096-code transponders with altitude reporting capability mandatory in designated airspace has been modified by FAA after a majority of comments received on the original proposal contended it would impose excessive requirements and restrictions on small planes.

The original proposal required altitude and identity reporting transponders on all planes flying in controlled airspace at/above 10,000 feet MSL, and in 63 airport terminal areas. Under the modified proposal the equipment would be required at/above 2,500 feet MSL, and in 21 designated terminal areas. Pilots operating into the other 42 terminal areas would not need the equipment if they are being provided separation service and participate in the expanded radar service program offered at these locations.

The agency feels that while the new rule (even in its modified form) would add to equipment costs for users of high altitudes and busier terminals, this cost factor would be far outweighed by increased air traffic control effectiveness, reduced collision potential and the additional airspace freed. Advanced technology has already reduced the cost of transponder equipment, and there is reason to believe this trend will continue.

Comments on the Supplemental Notice of Proposed Rule Making (Docket #9471, Notice #72-12) should be mailed to FAA, GC-24, 800 Independence Ave., S.W., Washington, D.C. 20591, before June 29, 1972.

Comments Sought on Clarifying Operating and Flight Rules

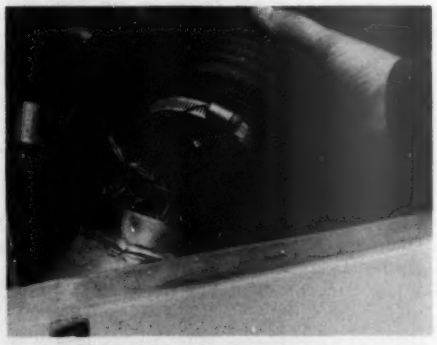
FAA is seeking help from pilots and other interested persons of the general aviation community on ways to make the Federal Aviation Regulations on "General Operating and Flight Rules" (Part 91) easier to understand and use. Issued in June 1963, Part 91 included most of the old Civil Air Regulations, Parts 43 and 60, some sections dating back more than 30 years. It has been amended 96 times.

An Advance Notice of Proposed Rule Making concerning Part 91 has been issued, following a report on general aviation safety to the Secretary of Transportation on Sept. 15, 1971, which noted that the operating rules and regulations are difficult to understand, especially by the occasional pleasure flyer. The report concluded that simplifying Part 91 would enhance safety and conserve manpower that is being used in interpretation.

FAA is particularly interested in comments on the following:

- Would Part 91 be more useful if it were divided into two or more parts, and if so, how? Should air traffic rules be separated from operating rules? Rules for small aircraft from those for large planes?
- What sections of Part 91 are most subject to misinterpretation? How could the format, wording and organization of the Part best be clarified?
- Should the sections of Part 91 be rearranged? Should sections of any other FAR Parts be included in Part 91? If so, which ones?

Comments on the proposed rule changes should be submitted by July 7, 1972, to FAA, GC-24, 800 Independence Ave. S.W., Washington, D.C. 20591. Mention Docket #11844, Notice #72-10.

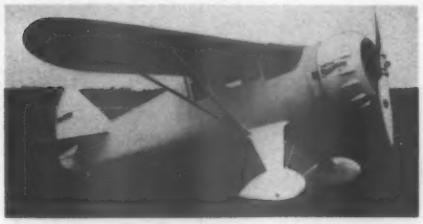


SLICK CHICKS. Some birds get very cagey at nesting time. Parents of this brood chose to "get away from it all" by crawling through the engine compartment and down into the heater hose where they built their nest. These nestlings were cozy, if crowded, when chirping gave away their hiding place. Family was removed to other quarters before takeoff, which would surely have resulted in barbecued birds. This is the season to check for chirpers.

• D—G—Mulligan

Does anyone remember an aircraft built in the thirties with the designation DGA or possibly Howard DGA? As I recall it, the builder said in a magazine article DGA stood for "Damned good airplane." The subject came up recently and no one recalls this aircraft or any of its specs or details.

Clyde Findling
Framingham, Mass.



Your letter sent us on an interesting search through Jane's All the World's Aircraft *for the 30's. 1935 was the year in which Ben O. Howard, an American transport pilot, designed and built a high-speed, four-seater monoplane, the Howard DG-A6, named "Mr. Mulligan". This machine won the 1935 Bendix Trophy Race from Los Angeles to Cleveland at an average speed of 239 mph, and the 1935 Thompson Trophy Race over a closed circuit at an average speed of 220 mph. The builder's description of his plane seems most appropriate.*

• Flat Lands and Sloping Runways

Your article entitled "Up Hill and Down Dale" in the February 1972 FAA AVIATION NEWS was most informative. I can add one thing to it, with your permission: A sloping runway can be found in places that are not mountainous. We have two in the Kansas City area that I have landed on, and I know of at least one in the Atlanta area that I almost *didn't* land on one night. You can probably still find the tire marks I left from about midfield to the end of the runway.

I elected to land at Gunn Airport, after making three passes down the dimly lighted runway, and I didn't realize the runway sloped until I tried to set down and found myself still airborne with half the runway behind the airplane. A go-around didn't seem advisable because of a large hill half obscured by darkness at the end of the runway. You can believe I memorize the "Remarks" in the *Airport Directory*, now.

David D. Spires
Overland Park, Kansas

• The Glory Girl

The article on Ruth Nichols, the Glory Girl, in the March issue was very interesting. However, her 1931 crash occurred in Saint John, New Brunswick, and not in Newfoundland. I saw the *Vega* on the evening of the accident and revisited the site this week. It is now a housing development. The runway on which she attempted to land was approximately 2,200 feet long with a hill about 100 feet high at the approach end. The end which she overshot was not bordered by "a sheer cliff," but rather by a rocky ledge on a slight upward slope. My recollection of the crash scene is that the main gear was sheared off and there was damage along the underside of the fuselage. Please keep up these interesting articles on the pioneers.

Albert W. Burditt
St. John, N.B., Canada

• Bus Power

Your excellent article on batteries and generation systems should carry a word of caution about alternator systems. Some alternators are dependent on an external source of DC power (battery) to furnish excitation. Inadequate excitation by a weak or dead battery during periods of heavy power demand (lowering the gear) will result in the alternator's protective circuits removing it from the bus, usually at the most inopportune times. Once disconnected, the weak battery may not provide sufficient excitation to re-establish bus power.

Jim Williams of the Farmingdale (N.Y.) GADO has been enlightening Raincheck East pilots about this by including some vivid accounts of winter-time gear-up landings of light twins with weak batteries.

D. W. Messengale
Huntington Station, N.Y.

• Over the Trees

Although I got my private license only a year ago, at age 17, I would like to suggest something which could be helpful since it is the result of my own experience. With my new ticket I was returning to the airport and had reported my position to UNICOM in preparation for landing. On final approach I was startled to see an aircraft (with a solo student) taking off. My view of the takeoff and departure point was obscured by trees and power lines, and you can imagine the experience gave me quite a fright. I think it would be a good idea if all pilots at uncontrolled fields monitored the UNICOM and gave their field positions before takeoff or landing.

Christine D. Bommer
Wilton, N.H.

• Airworthiness Directives

How many Airworthiness Directives (AD notes) were issued in 1970 and 71? Are these AD notes broken down according to engines, airframes, fixed wing, helicopter, light, medium or heavy aircraft?

Ontario, Canada

Airworthiness Directives (concerning items which are regarded as safety hazards requiring prompt attention) are generated within the FAA region where the type certificate was originally issued. They are not tallied nationally, but number several hundred per year. They are categorized in various ways and are published in two volumes, one for small planes, one for large. These can be purchased separately as follows: *Summary of Airworthiness Directives, Small Aircraft*, Vol. I, TD 4.10/2:970, $5 domestic, $6.25 foreign; *Summary of Airworthiness Directives, Large Aircraft*, Vol. II, TD 4.10/3:970, $5.50 domestic, $6.88 foreign. Send check to Superintendent of Documents, Washington, D.C. 20402.

• Ice Hampers

The article "Ice Ain't Nice" (Dec. 1971/Jan. 1972) makes the statement that "the pilot may be hampered by the unreliability of key panel instruments, such as the airspeed indicator, altimeter, turn and bank indicator, etc., due to icing of the pitot tube or static ports."

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.

The turn and bank indicator, being in no way connected to the pitot-static system, would not be affected. However, if the turn and bank indicator is operated by vacuum from an externally mounted venturi tube—as was common a number of years back—the pilot would indeed be "hampered" since the venturi tube would be subject to the same icing environment as the pitot. Unless he had an additional gyro-driven instrument he would in all probability be "hampered" right into the ground.

James Fleming
Santa Clara, Calif.

• Airline Career

I intend to become a commercial pilot and would like advice on how to obtain my training at ground school and air school. I am in fifth form at college.

Victor S. Skeete
St. Peter, Barbados

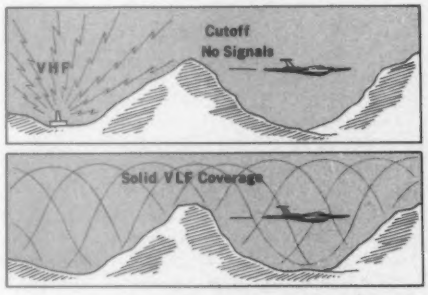
The minimum requirement for pilot crewmember with any U.S. airline is a commercial pilot certificate with an instrument rating. To reach this level you would need to pass the written and flight tests for private pilot, commercial pilot and instrument rating.

We suggest that you contact a local flight and ground school of your choice for information on cost, curriculum, length of courses, etc. FAA has a number of publications which might be of help to you, including written examination and flight test guides for private, commercial pilot and airline transport pilot, and for instrument rating. These are listed along with prices of each in FAA Publications, *a catalog available free of charge from DOT/FAA Distribution Unit 484.3, Washington, D.C. 20591.*

• The "Endless Signal" Returns

I thought your article "The Endless Signal" (March 1972) describing Omega radio signals and their potential for general aviation was well written. Some urgent R&D is needed to resolve some of the questions about lane identification, but my experience flying Omega suggests that the constant sensitivity and absence of station change are major advantages for private pilots. Also the possible mix of VOR and Omega will help avoid lane identification problems; the strength of each system will overcome the other system's weaknesses.

George B. Litchford
Northport, N.Y.



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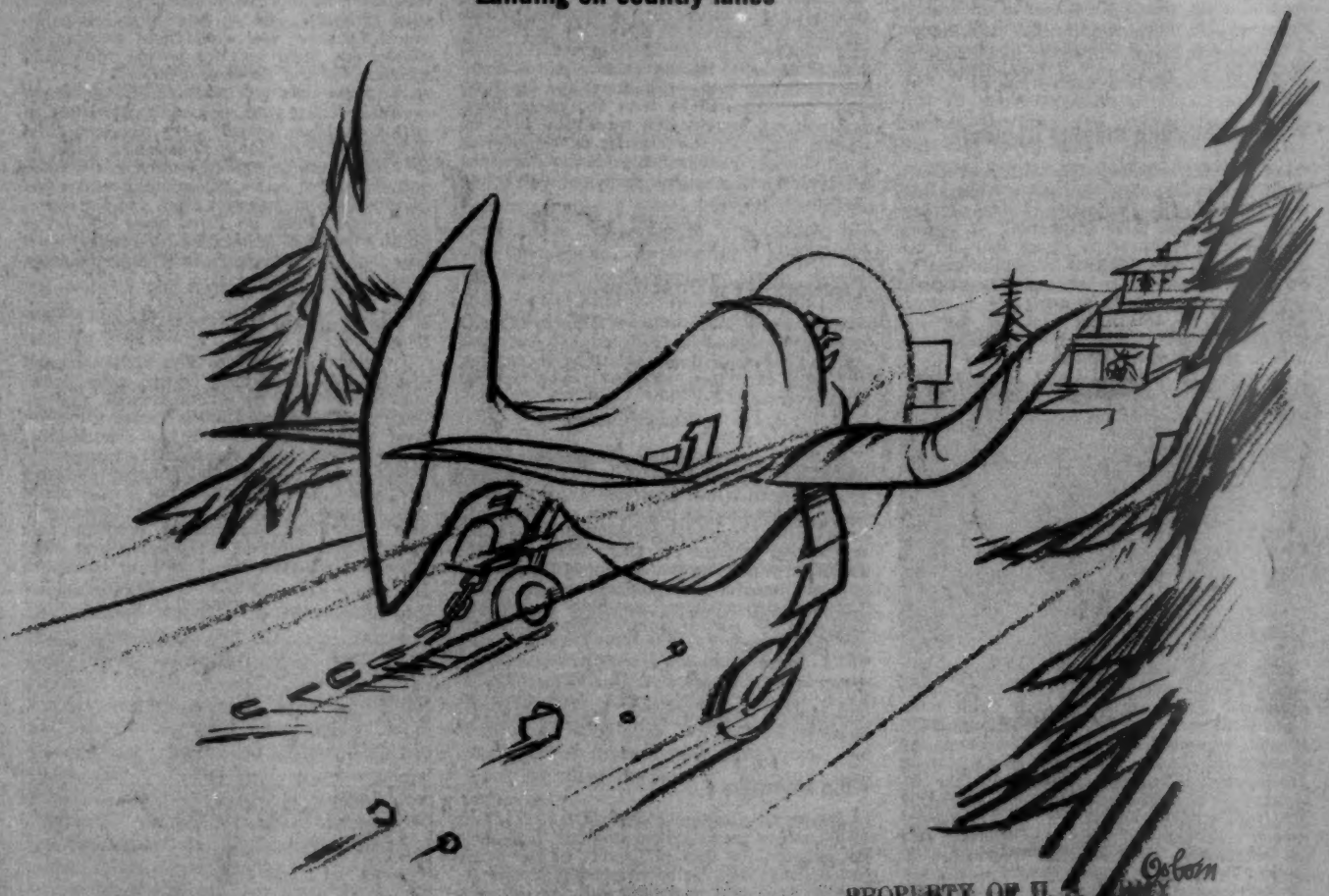
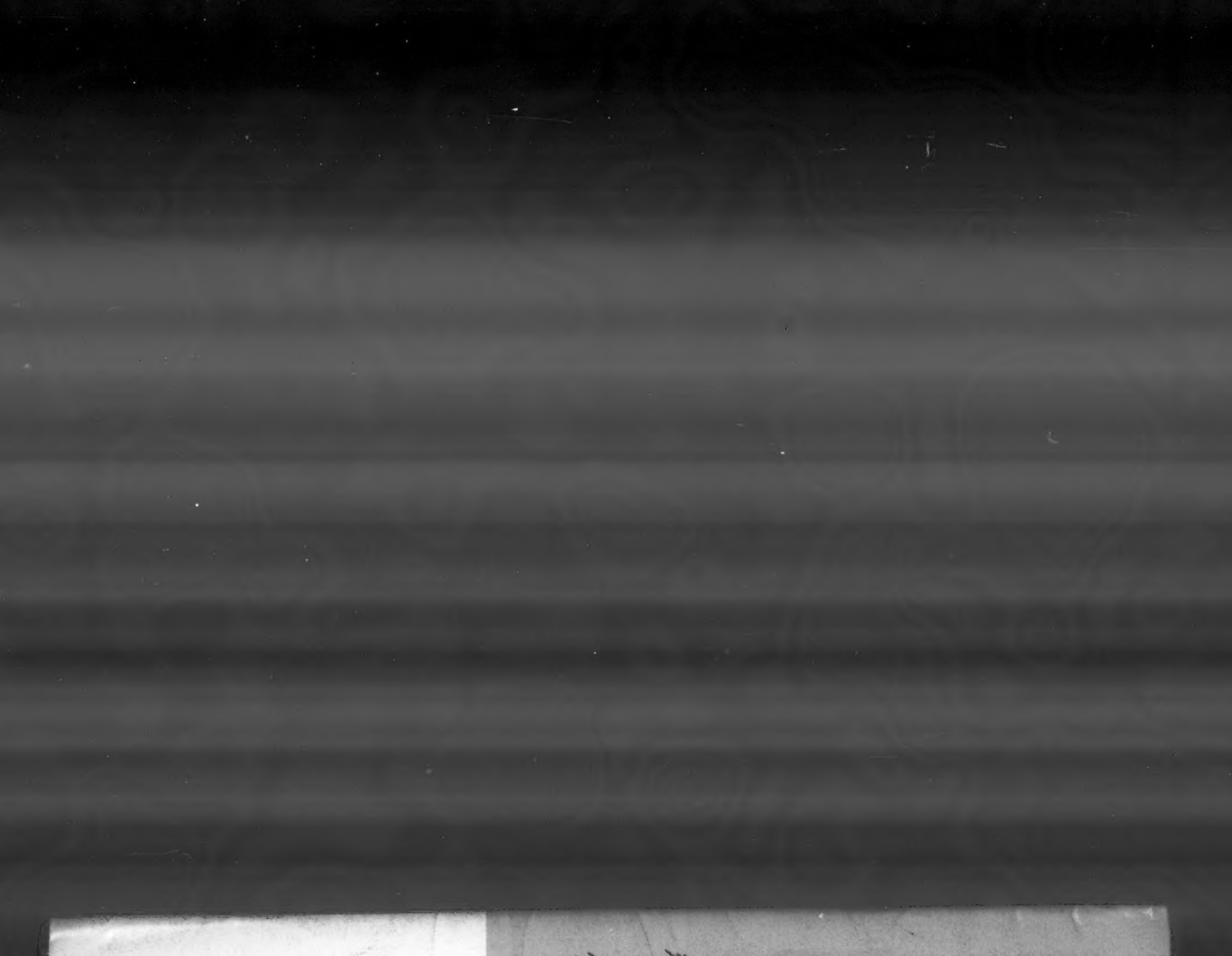
Landing on country lanes



Frightens little airplanes

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